DEVELOPMENT OF EMPLOYABILITY SKILL PROFILE FOR CONSTRUCTION SKILLED WORKERS IN MALAYSIA

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Lillahitaa'la. Specially dedicated to *Mama, Papa,Mahmud, Dila, Nazirul and Nubli*

You are my inspiration.

Semoga kami termasuk di dalam golongan orang yang Engkau redhai

Kerana Allah untuk manusia..

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ABSTRACT

It is essential that the vocational skill providers understand the skill gap and the requirements of the construction organisations to be able to produce suitable skilled workers. The focus of this study is to identify the skills requirement for the construction skilled workers to work efficiently and be equipped with the necessary attributes to be employed in the construction sector. Essential skills necessary for construction skill workers were identified from the perspectives of the training providers and the construction organisation in Malaysia. This thesis presents the findings of the questionnaire survey among the industry experts, semi structured interviews with the training providers and the validation exercise involving practitioners in Kuala Lumpur and Selangor. The study identified seven important key skills which include Positive Attitude and Behaviours; ability to Work with Others; Responsible; Job Competencies; Communication Skills; Adaptability and Qualification Factors. The skills were ranked according to the Relative Important Index (RII) value. These seven key skills were broken down into 48 elements of skills. However, the analysis shows that, these skills were only applied in the range of 18.4% to 57.1% in the training institutions. Those skills are important in order to increase the capability and employability of skilled construction workers. Besides, the involvement of contractors and construction related bodies in the training scheme should be increased in various aspect and they should also be responsible to play important roles in producing skilled workers since they are the most beneficial parties that widely using skilled workforce. Thus, the study is an important step towards the problem of skill workers in the Malaysian construction industry. The implementation strategies in integrating the role of training institutions and the construction industry would ensure that graduates from these training institutions are competent to fill the skill gap requirement by the various construction organisations.

ABSTRAK

Adalah amat penting bagi pihak institusi latihan kemahiran vokasional memahami kemahiran yang diperlukan oleh majikan supaya dapat menghasilkan pekerj mahir yang sesuai mengikut kehendak industri. Fokus kajian ini adalah untuk mengenalpasti kemahiran yang perlu ada pada pekerja mahir binaan untuk bekerja dengan cekap dan menyediakan diri mereka dengan sifat dan personaliti yang diperlukan. Set kemahiran tersebut telah dikenalpasti daripada perspektif penyedia latihan kemahiran dan organisasi pembinaan di Malaysia. Tesis ini membentangkan hasil kajian soal selidik di kalangan pakar-pakar industri, temuduga berstruktur separa yang dijalankan bersama penyedia latihan dan hasil proses pengesahan yang dilakukan bersama profesional industri di Kuala Lumpur dan Selangor. Kajian ini telah mengenalpasti tujuh kemahiran utama termasuklah Sikap dan Tingkahlaku Positif, Bekerjasama, Bertanggungjawab, Kecekapan dalam Melaksanakan Kerja, Kemahiran Berkomunikasi, Kebolehsesuaian serta Faktor Kelayakan. Kemahiran tersebut telah disusun berdasarkan nilai Indeks Kepentingan Relatif (RII) dan disokong dengan 48 pecahan elemen kemahiran. Walaubagaimanapun, analisis kajian menunjukkan bahawa kemahiran-kemahiran tersebut hanya dipraktis di institusi dalam julat 18.4% sehingga 57.1% sahaja. Kemahiran tersebut penting untuk meningkatkan keupayaan dan kebolehkerjaan pekerja mahir di tapak pembinaan. Selain itu, penglibatan kontraktor dan organisasi berkanun industri di dalam latihan kemahiran perlu ditingkatkan dari pelbagai aspek dan memerlukan penglibatan yang serius memandangkan mereka adalah pengguna utama tenaga kerja mahir. Maka, kajian ini adalah satu langkah yang penting ke arah mengurangkan masalah kekurangan tenaga mahir dalam industri pembinaan di Malaysia. Strategi pelaksanaan yang mengintegrasikan peranan institusi latihan dan industri pembinaan akan memastikan graduan daripada institusi-institusi latihan adalah berwibawa untuk mengisi keperluan jurang kemahiran yang dialami oleh organisasi pembinaan.

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LIST OF ABBREVIATION

ABM	-	Akademi Binaan Malaysia
ACCI	-	Australian Chamber of Commerce and Industry
CIDB	-	Construction Industry Development Board
CIMP	-	Construction Industry Master Plan
CSC	-	Construction Sector Council of Canada
CITB	-	Construction Industry Training Board
DSD	-	Department of Skill Development
IKBN	-	Institut Kemahiran Belia Negara
IKM	-	Institut Kemahiran Mara
ILO	-	International Labour Organisation
ILP	-	Institut Latihan Perindustrian
KK	-	Kolej Komuniti
MOE	-	Ministry of Education
MOW	`	Ministry of Work
NDTS	-	National Dual Training System
NOCC	-	National Occupational Core Curriculum
NOSS	-	National Occupational Skill Standards
NVQC	-	National Vocational Qualification Core
NVTC	-	National Vocational Training Council
PGM	-	Pusat Giatmara
PPP	-	Public-Private Partnership
SCANS	-	Secretary’s Comission on Achieving Necesary Skills
SFEU	-	Scottish Further Education Unit
SKM	-	Malaysia Skill Certificate
SOU	-	Standard Occupational Classification
TVET	-	Technical and Vocational Education and Training

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The Economic Transformation Program (ETP) and the 10th Malaysia Plan (10MP) are expected to transform Malaysia to be amongst the high – income nations in the world by the year 2020. In tandem with the government aspirations, the construction industry desires to be among the best globally upon complete implementation of the Construction Industry Master Plan (CIMP 2006 – 2015).

Construction sector contributes about 3.5 percent to the Nation's Gross Domestic Product (GDP) and employed about 700,000 workforce with an annual worth of about RM50 billion. Under ETP, the sector's GDP is expected to grow at 3.7 percent per annum. This is because there are 52 high-impact projects in Public-Private Partnership (PPP) which include seven highway projects estimated to cost RM19 billion. The projects include the West Coast Expressway, Guthrie-Damansara Expressway, Sungai Juru Expressway and Paroi-Senawang-KLIA Expressway (CIDB, 2009). In terms of employment, the construction sector is expected to employ 777,000 persons in 2015 compared to 2009, which recorded an employment rate of 762,000 (Ministry of Finance Malaysia, 2011). The country may require more than one million construction personnel over the next 10 years (Kwan, 2011). However, severe shortage of skilled workers within the construction industry gives a negative impact on the roll-out of projects under the 10th Malaysia Plan and the

ETP. The Department of Statistic reports that skilled and craft worker's vacancies in the construction industry are increasing by the years as shown in Figure 1.1.

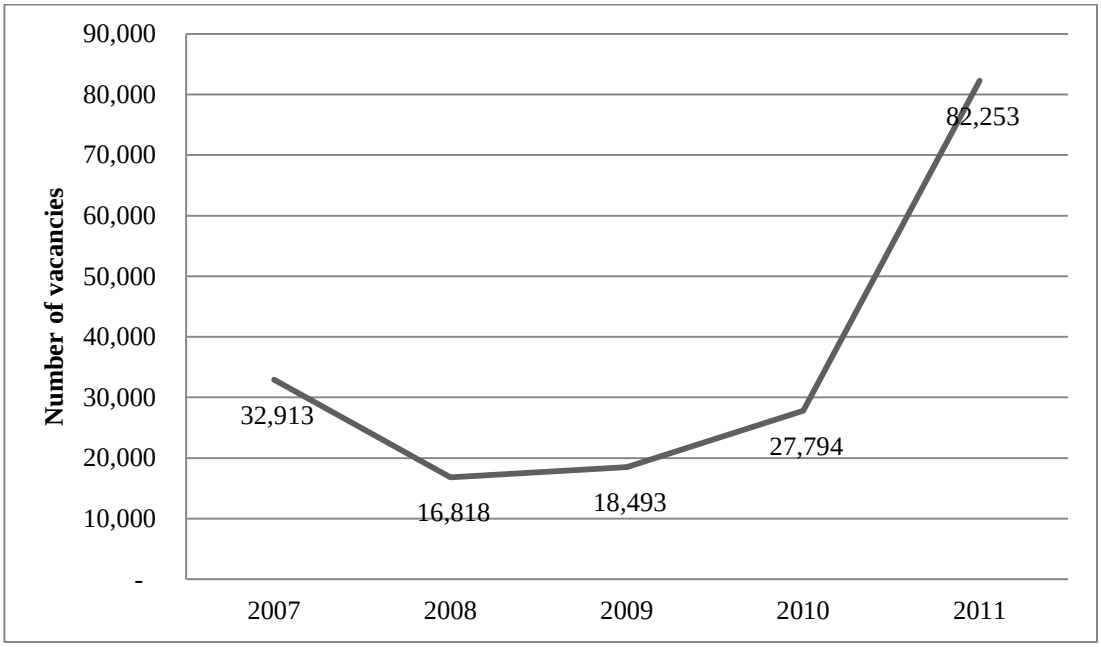

Figure 1.1: Vacancies of skilled and trade workers

Source: Department of Statistics Malaysia (2012)

Furthermore, in support of ETP, the Ministry of Works proposed five strategic initiatives to enhance the construction industry programs. These initiatives are:-

a) Revision and establishment of construction industry related acts
b) Enhancement of processes and technologies
c) Leveraging on Information and Communication Technology (ICT)
d) Strengthening enforcement and project monitoring
e) Capacity enhancement of professionals, contractors and workforce

To develop massive project planned in the 10th Malaysia Plan and ETP, foreign and local workers are needed (SME Corp, 2011). Kwan (2011) said that, one of the greatest challenges facing Malaysian construction industry is the shortage of skill workers. It is reported that, ETP aims at creating over 500, 000 new jobs by 2020 to improve on the supply of skill workforce in the Industry.

In order to meet up with the massive roll out of projects under ETP, there is a need to build on the capacity of the local workforce. To achieve this, education, training and retraining of local workforces is a fundamental requirement (Park, 2005). Atkinson (2001) pointed out that, education and training are needed by an individual in order to be skillful and adaptive so as to ensure job security. Similarly, in this globalisation era, economic success of a nation can be achieved through knowledge work and knowledge workers (Government of Australia, 2001).

Therefore, the main focus of this research is to investigate the practical approach that could be adopted to improve the current process of skill training program in various training institutions. This standpoint is important because one of the strategies in building human resource is through Technical and Vocational Education and Training (TVET). TVET encompasses the ability to accelerate economic growth, provide marketable labour supply, minimise unemployment and underemployment, infuse technical knowledge and reduce poverty (Park, 2005).

1.2 Background of Study

1.2.1 Skill Shortages

Skill shortage remains in the high rank of the top obstacles faced by various industrial sectors in Malaysia (NEAC, 2010). It is where employers experience difficulties in the recruitment and therein (Newton et al., 2005). The definition of skill shortage depends on one's perspective of the labour market. Newton et al (2005) argued that skill shortage is when the external labour market of applicants has the deficit of experiences, skills and qualifications required by vacancies employers seek to fill in. They further stated that it is usually caused by the deficit of the potential new recruits to the employer.

Economists define skill shortage as where "the quantity of given supply of workforce, and the quantity demanded by the employers diverge at the existing market condition" (Roy et al., 1996). They further stated that, this included

'quantitative shortage' where there is a lack of the potential workers with particular skills. Alternatively, 'qualitative shortage' occurs where current workers lack of skills required by employers. 'Skills shortages' term is defined as a shortage of individuals with the required skills in the external labour market (potential workforce) - different to 'skill gaps' or deficiencies in the skills of an employer's current workforce that require internal training. Even though they relate to different problems some authors treat them indiscriminately as a general 'lack of skills' (Ruiz, 2004). To be more precise, qualitative skilled shortage or lack of skill required is one of the aspects of skill shortage called skills gaps. Skilled gap is defined as 'skill deficiencies of employees' (Bloom et al., 2004). Thus, this research is concerned with the descriptive content of those skills deficiencies.

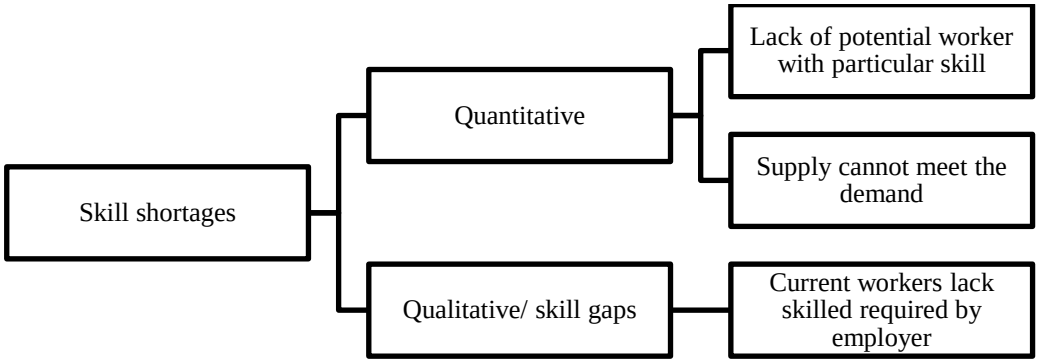

Figure 1.2: Summary of Definition for Skill Shortages

Extracted from: (Ruiz, 2004) (Bloom, Conway, Mole, Moslein, Neely, & Frost, 2004)

Figure 1.2 above summarises the definition of skills shortages from the definitions discussed before. The skills shortages are divided into two aspects, whether it is in the quantitative aspect or qualitative aspect. The quantitative aspect is basically the shortage of the number of people to work on the construction site. Meanwhile, qualitative aspect focuses on the workers lack of the skills as required by the employer in the construction industry.

1.2.2 Type of Labour

The Statistic Department of Malaysia considers skilled labour as the category of workers who undergo formal training, specifically in their specialisation either

from training institution, workplace or others. The Department of Skill Development defines a skill worker as a worker who obtained the level three certificates based on the Malaysia Skill Certificate (SKM) as a minimum qualification. 'Skilled worker' can be defined as employees who learned and have the ability and knowledge in the related field with the qualifications recognised and applied to the optimum. There are three types of labour practice in Malaysia, divided into three group base on their scope of work, level of skill and salary:-

- **General labour or unskilled labour**

  They lack experience and unskilled on what they are about to do on construction sites. They just act as an assistant for skilled labour on site. Normally, they are not trained and not having any extensive training in certain trades. There are no basic training skills provided for them (Wei, 2001). They have been given only easy works that do not require skill at the construction site. Their salary is lower than semi-skilled labour (Jamiran, 2000).

- **Semi skilled labour**

  They have more experience in the construction industry compared to general labour and work under supervision of skilled labour (Ong Siong Wei, 2002). They only help skilled labour works, and their skills are not up to the requirement to do the skilled work themselves. To get into a semi-skilled level, they will need around one to five years of experience of work (Jamiran, 2000).

- **Skilled labour**

  Skilled labours are people who have the acknowledgement from institutional and proven by certificate or being an apprentices for years and become an expert in that trade even without having formal training (Jamiran, 2000). They do not do the work that required high capabilities. To produce a skilled worker takes a lot of time, which makes it difficult to adequately respond to the demand from the construction industry. They received higher pay compared to semi-skilled labours, and their status is a bit higher in the

construction site. Usually, a labour needs five to ten years of training to be a skilled labour (Noor Azaliza, 2003).

1.2.3 Initiatives by the government of Malaysia in overcoming skill shortages

Government of Malaysia has spent about the RM 1.7 billion annually in order to produce highly skilled manpower. Ministry of Human Resources need to manage the allocation wisely to be able to produce the skilled workers needed as reported in the National Key Result Area (NKRA) that Malaysia will need 3.3 million workforces by year 2020 and 50 percent of them should be highly skilled workers.

In 2011, skill workers represent 28 percent from the total workforces and it is estimated that the percentage will increase to 33 percent in 2015. NKRA has set an objective number of skilled workers that MOHR has to produce to help the development upon the 10^{th} Malaysia plan (Ministry of Human Resource, 2011). The objective of the number set up is to encourage the increment of the population of skilled workers every year.

Thomas (2007) revealed that there are 1,151 public and private training institution that offered skill training based on National Occupational Skill Standards (NOSS) which offer 6,575 training programs. The private training institutions are operated by employers, associations, companies and enterprise. As for the public training institutions that have been governed under the purview of Ministries, they are divided into different groups as shown in Table 1.1:-

Table 1.1: Number of public training institutions

Administer	No of Training Institution
Ministry of Human Resource	26
Entrepreneur and Cooperative Development	165
Ministry of Youth and Sport	15
Ministry of Education	66
Agriculture and Agro based Industry	10
Home Affairs	16
Ministry of Defense	15
Rural and Regional Development	2

Administer	No of Training Institution
Family, Woman and Community Development	4
Plantation Industries and Commodities	1
State Authorities	42
Total	**362**

However, due to some issues, Malaysia is still not able to produce enough manpower to respond to the industry's demand. Malaysia is not producing the right talent for future growth and the number entering construction industry is declining (NEAC, 2010).

To achieve Malaysia's aim to be a high-income nation in 2020 and sustaining skilled workforce, there are three necessary components to facilitate the process of developing a skilled workforce which comprise of industry, school and training institutions. These three components must complement and help each other to ensure the success of producing the skilled workforce. Training institution indeed is a place to train and produce skilled workforces. The graduated skilled workforces are to fill the shortage of skilled workers within the construction industry as required by the contractors. The training institutions should be encouraged to provide information on the industry that could help to change culture and society's perception towards the industry and vocational education, as well as to inculcate students' interest at the early stage to give passion and motivation to students taking construction as their career. Training sector must play their role to produce workers to ensure that they are competent enough to work in the industry. In addition, the stakeholders in the construction industry must help to improve the image of the industry to gain positive perception from the society. Industry's deep involvement towards skill training and vocational education are necessary (Zakaria, 2012). Figure 1.3 below shows that there must a strong collaboration between different parties in ensuring that the numbers of skilled workers are met.

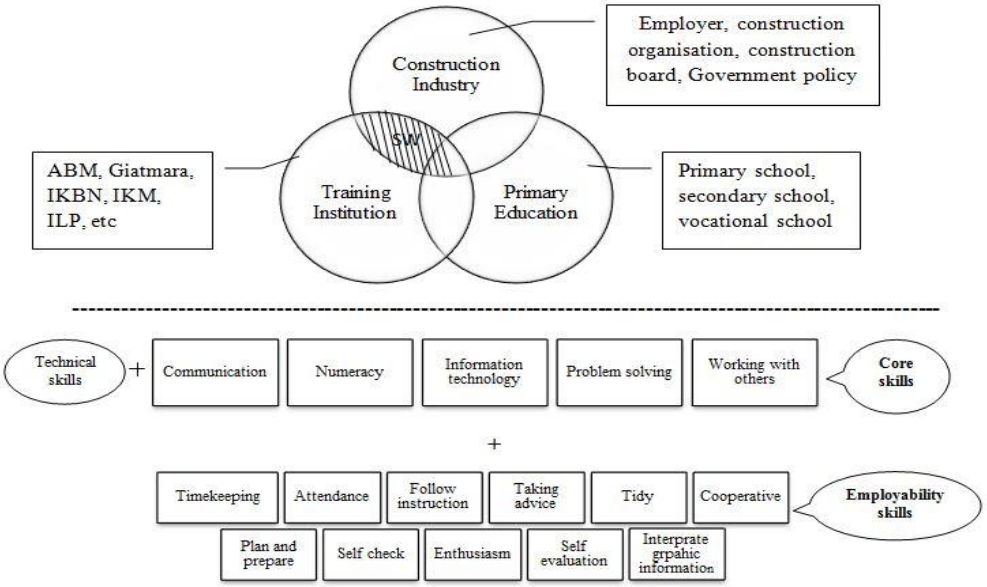

Figure 1.3:Necessary collaboration in producing skilled worker (SW)

1.3 Statement of Problem

Manpower development is an essential component of construction industry globally because the contribution of the construction sector is fundamental in generating growth and national development (Park, 2005). Acute skill crisis of professional and craft workers will be a threat to the productive capacity within the sector (Chan & Dainty, 2007). Skills shortage in the construction industry exists when employers having difficulties in filling the job vacancies because there are insufficient job seekers with required skills (Department of Labour, 2004). There are many challenges facing Malaysia's construction industry in producing skilled construction workforce and qualified workers.

One of the reasons is because of changes of technologies in the construction industry that creates demand for workers (Heldrich, 2004). A report from Kwan (2011) says that more than half of the construction personnel aged above 40 years. According to the CIDB report, about 35 percent or 176,000 from 502, 493 local construction workers will reach age 50 years and most of them will retire by 2017. With the points highlighted that if the situation is not addressed, it will become a

threat to the Malaysia construction industry. Meanwhile, Lobo and Walkinson (2008) argue that the number of people entering trade is declining and the number of people enrolled in the construction vocational skill training is low. Thus, it becomes more difficult because the quantity of people entering construction industry is declining to indicate poor participation from new talented workers to replenish or refill the aged population workers (MBAM, 2009).

Current statistic by CIDB revealed that the quantity of skilled workers is declining as shown in the Table 1.2. This constitutes a major challenge that needs urgent attention from the industry stakeholders.

Table 1.2: Quantity of Workers Registered in CIDB

Category	2005	2006	2007	2008	2009
General Worker	114,615	125,992	141,463	152,235	164,919
Semi-skilled Worker	16,213	15,478	16,284	14,416	15,442
Skilled Worker	*42,166*	*42,244*	*46,267*	*41,336*	*38,506*
Administration Personnel	35,646	51,552	68,344	74,510	64,477
Site Supervisor	29,197	31,578	34,706	34,856	36,491
Construction Manager	20,241	21,757	23,251	23,472	25,363
Total	258,078	288,601	330,315	340,825	345,198

The fact of the declining in quantity of the skilled workers since 2007, shows that people are disinterested in joining construction industry. Poor image of construction industry makes people prefer to work in other sectors (Dainty et al., 2005). Students and job seekers are disinterested with the career opportunities offered in the Malaysian construction industry (Abdul Aziz, 2001). Moreover, a phenomena called brain drain issue where Malaysian construction personnel prefer to work in overseas construction companies where they receive higher salary, better opportunities match to their experience and skills (MBAM, 2009). There are about 700,000 of Malaysian working overseas mostly in Singapore, Australia, United States and Britain, which offer better opportunities and higher salary match to their experienced and skills (Tan, 2010). Hence, the challenges in sustaining manpower development includes poor participation from local people in vocational skill training, poor image and unattractive job (Dainty et al., 2005), low confidence of salary payment, poor working environment, contractor's greed and economic factor (CIDB, 2002; Shiadri Saleh, 2008; Zakaria & Rashid, 2008).

The first challenge of sustaining the skilled manpower is to improve the participation of the local people to be skilled construction workforces which has not been encouraging even though there are various initiatives undertaken by the Malaysian government. This includes technical and vocational education and training in the public training institutions. Besides producing skilled manpower for the industry, increasing the skill level of the labour force is also linked to the educational factor. Various programs to attract skill talent have been introduced before, but it has never achieved concrete terms (NEAC, 2010). Construction-related training is administered by the Construction Industry Development Board (CIDB) under Akademi Binaan Malaysia (ABM) and its branches. From 1999 to June 2007; CIDB have already trained about 50,000 trainees under the CIDB Youth Skills Training Program and at the same time, CIDB has also conducted training for 40,000 construction personnel.

However, 80 percent of personnel are not working for the construction industry. The main reason is that the trainees were not exposed to and equipped with the right attitude for the reality of working on construction sites (MBAM, 2009). Furthermore, the mass departure of talented Malaysians is further compounded by the fact that the education system, despite high fiscal outlays through several reform efforts, is not effectively delivering the skills needed. Even through TVET, Malaysia is not producing the right talent needed for future growth (NEAC, 2010). Better collaboration between employers and training centers will help to correct the mismatch between industry's demand and graduates as well as improve graduate employability (NEAC, 2010). The educational and training attainment is closely related to the government policy, and it is believed to give positive effect of the shortage of skilled labour issue (Haskel & Martin, 1993). Lack of coordination between education, industry and government can lead to the continuous shortage even there are many initiatives introduced because it will not work to the optimum (Lobo & Wilkinson, 2008).

Secondly, Abdul Aziz (2001) explained that poor career path, unattractive job, low job security and poor wage rate are the major reasons that make people reluctant to join construction industry. Malaysian construction workers preferred working overseas because the local wage rate is low compared to other countries

(NEAC 2010) like Singapore, South Korea and Thailand. In addition to that, the local contractors do not adapt fixed salary system and they often recruit on the short term basis (CIDB, 2004). In Britain, Haskel and Martin (1993) conducted a research into the causes of the shortages of skill labour, they pointed out that higher pay is needed to encourage skill workforces, reduce unemployment and skilled shortage.

Furthermore, CIDB (2002) explained that negative perception, poor site accommodation, overcrowding, crude sanitation, uncontrolled surface water drainage and poor rubbish disposal provided for workers makes the job really unattractive. CIDB further explained that the local skilled workforces are unwilling to stay in that condition and consider employment in the construction sector as not dignified enough. Although construction sector offer promising career (for those who start from the bottom and usually most people avoid this path), contracting system, temporary and casual stuff for prolonged periods, non-payment of statutory contribution such as Employment Provident Fund (EPF) and Social Security Organisation (SOCSO) serves a huge distraction to locals (MTUC, 2006).

By and large, foreign workers with low skills and poor educational background engaged in it make local people think such work is not for them. This resulting in the locals being reluctant to work in the construction industry, leading to further reliance on foreign workers (Abdul Aziz, 2001). For instance, the Department of Immigration Malaysia (2010) observes that there are 288, 722 foreign workers in the construction sector of the economy that come from foreign countries. However, these foreign workers do not possess the requisite skills necessary for efficient site productivity and the construction firms often do not provide training programs for the new employees (CIDB, 2004). Most of the foreign workers that come to Malaysia are unskilled. Depending on the low-skilled and cheap foreign workers (Ofori, 2002) are always associated with low productivity (Chong et al., 1996; Tan, 2000), poor quality and safety (Ng, 1996). They will learn at the site the moment they start to work by assisting the more experienced workers thus they produce work below par and not meeting the industry's standard (REHDA, 2008 & CIDB, 2002). Ofori (2002) highlight that foreign workers would continue to be employed owing to limited human resource and the availability of more attractive work. Reliance on the foreign workers would be vital in reaching Malaysia's aim to

be a high-income nation (SME Corp, 2011). However, if free recruitment for unlimited foreign workers remains, employers will not make an effort to hire local workers (MTUC, 2006). Thus, he adds that reliance on them should be reduced and their skill should be enhanced (Ofori, 2002).

Besides that, the economic factor can be seen from the rapid development in the economy of Malaysia that has increased in the last decade. There are many construction projects. The rising number of construction projects will lead to shortage of skilled labour because workers can afford to be choosy (Yeo, 1992) For example, Mass Rapid Transit (MRT) is projected to cost about RM40 billion and requiring an additional 130,000 workforce from various trades (Sazali, 2011). Moreover, construction in the Middle East required more skill and experienced people to ensure completion of the project and offer better opportunity in terms of salary would encourage the industry players to work overseas (World Bank, 2011).

Furthermore, subcontranting is an indirect employment system often employed by the main contractor to cope with increase in demand for labour. This is the common practice, in the country to the benefits of main contractors without discharging their statutory obligations (Debrah & Ofori, 2002). They also do not need to train the workers (CIDB, 2002). However, this system leads to poor workmanship by labourers, wastage of material; improper use of equipment and workers do not enjoy permanent employment; they also do not receive any perks and welfare benefits normally relating to such employment (Debrah & Ofori, 2002).

This system is not helping to attract local youth to participate because they still think jobs in the sector are not dignified enough (ILO, 2001). It is reported by MTUC (2002) that most of the main contractor pays RM80 per day for each worker utilized by the sub-contractor whereas the sub-contractor pays the worker only RM33 per day. More than 50 percent of the payment meant for the worker is pocketed by the sub-contractor. Importing cheap labour is often the main cause of distortion between the relative price of capital and labour. Demand for foreign workers is not genuine because of the shortage, but it is due to employers' desire to pay low wages (MTUC, 2002) and they keep using foreign workers to reduce the

cost because employers did not have to pay EPF for the workers (Noor Azaliza, 2003).

Moreover, lack of training and skill formation among people is an issue to sustain the skilled workforce. People did not see many opportunities for trade works. Lack of training and inappropriate training is one of the shortage reasons (Clarke & Wall, 1998). Pearson & Sharma (2010) assert that people think that job as craftsmen are not respectable job. Quality of skill available is important to consider, thus vocational training plays the important role in providing skills to the industry (Dainty et al., 2005).

Poor image of construction industry not only comes from construction nature which has been regarded as dirty, dangerous and difficult. Reason also includes labour recruitment itself. Construction workers around the world in terms of employment have always been poor (ILO, 2001). Moreover, accidents are common at the construction site until people think it is unavoidable. Labourers in Malaysia are working without being fully provided with the necessary equipments. The working condition is more dangerous compared to the work condition in another developed country like the United Kingdom. According to the Department of Occupational Safety and Health (DOSH, 2011), a total of 51 death accident cases occurred and was investigated. It is the highest death accident compared to other sectors. Another three accidents caused permanent disability and 43 accidents resulted into non-permanent disability. DOSH pointed out that, there are many other accidents that are not reported. Ofori (2003) considered that, if the accident and fatality of construction can be reduced, it will further improve industry image and fit better for the knowledge society by helping to attract higher local personnel.

International Labour Organisation (ILO) identified factors that hindered local talent to join the construction sector as; basic labours rights have always being neglected or flouted in the construction industry; restriction to join trade unions; temporary employee status because they are foreign or self-employed; unsafe working condition; gender discrimination and discrimination between local and foreign workers are widespread in both developed and developing countries. In short, construction industry offers most disadvantage employment compared with

other sectors. The challenges to sustainable skilled workforces development that were previously discussed are summarised in Table 1.3.

Table 1.3: Challenges to sustain construction workforces

No	Problem	Author
1	Poor career path and unattractive job - Salary paid by productivity or output, not fixed - Underpay salary of construction workers - Poor site accommodation and facilities	Abdul Aziz (2001) CIDB (2004) CIDB, 2002 MTUC (2006) Dainty et al. (2005) Heldrich (2004) Haskel et al. (1993)
2	Over dependence on foreign workers - Foreign workers do not possess the requisite skills - Employers did not provide formal training for new employee - Poor educational background of foreign workers	Abdul Aziz (2001) Department of Immigration (2010) Ofori (2002) CIDB, 2004, REHDA (2008) SME Corp (2011) Chong et al. (1996) Tan (2000) Ng (1996)
3	Contracting system - Indirect employment - Encourage employer to not give formal training to workers - Lead to poor workmanship, wastage and improper use of equipment - Workers are not enjoy permanent employment and the benefit - Employers desire to pay lower wages	CIDB (2002) ILO (2001) MTUC (2002)
4	Lack of training and skill formation - Lack of information on career in construction - Tradesmen is not a respectable job - Lack of passion and interest	Pearson & Sharma, (2010) Yin (2009) Clarck & Wall (1998) Dainty et al. (2005)
5	Poor image of construction industry - Dirty, dangerous, difficult - The construction workers always been poor - Accident and death on construction site	ILO (2010) DOSH (2011) Ofori (2003)

1.4 Research Questions

The research question is further divided into the following sub questions:-

- **Research question 1:** What are the key skill requirements of the construction skill workers for the construction industry?
- **Research question 2:** What are the current training practices being carried out by the training institutions?
- **Research question 3:** How can the training programs provided by the various institutions be improved?

1.5 Research Aim

The aim of this study is to develop an Employability Skills Profile for Construction Skilled Workers in meeting construction industry skills requirement.

1.6 Research Objectives

As referred to the issue raised above, the objectives of the study are as follows:

- **Objective 1:** To investigate the construction firms' skills requirements of construction skill workers
- **Objective 2:** To identify current training practices for the skilled workforce, focusing on the key programs, career path plan and existing initiatives by the training institution
- **Objective 3:** To develop Employability Skills Profile for Construction Workers in improving the training provided by the various training institutions in order to meet the employers' requirement

1.7 Scope of the Study

Deficiencies in the skills needed by employers require skill training and somehow Malaysia is still not able to produce the right talent for future growth. Thus, for the first research question in the study, that is to identify the skill requirements for skilled construction workers, questionnaire survey method has been conducted on the practitioners from the building construction firms. It is limited to practitioners in building construction firms because they are directly involved with construction skill workers during project execution. Building construction firms are selected because they are part of the entire construction industry.

The second research question is to get the general understanding about the vocational training provided by various training institutions. Therefore, this study employed semi structured interview with the training providers of the six types of training institutions mainly:-

a) Akademi Binaan Malaysia

b) Pusat Giat Mara

c) Institut Kemahiran Belia Negara

d) Institut Latihan Perindustrian

e) Institut Kemahiran Mara

f) Kolej Komuniti

The type of skills for construction workers in this study are limited to the eight selected trades listed below because they are the main trades for any construction project. Furthermore, the answers received from respondents especially from the interview are based on the institutions' experience regarding these skills only (whichever provided by the institutions)

a) Concreter

b) Bricklayer

c) Plasterer

d) Painter

e) Tiler

f) Steel Worker

g) Carpenter

h) Glazier

1.7.1 Operational Definitions

In this study, there are specific terms which have been used repeatedly and at the end, are used for the development of strategies. The terms used include:

- Employability Skills: Employability skills in the research refer to the skills that will increase an individual employability and the skills that important to the employers. The skills listed are the generic skills that contribute to the positive attributes that employers are looking for. Further explanation about the employability skills is in Chapter 3 of the dissertation.

- Technical Vocational Education and Training (TVET): TVET in this research refers to the skill training that are provided in the public training institutions. It is a systematic approach to train people with the technical skills and produce skilled manpower to respond to the demand of the industry. TVET is further described in the Chapter 2 of this dissertation.

- Vocational Skills / Technical Skills: vocational skills or technical are skills that involve techniques, skills formation that required certain duration of training to acquire the skills. For a construction skilled worker, this type of

skill is the core skill and without doubt the training institutions are trying to deliver these skills to the trainees. The explanation about the skills can be found in Chapter 3.

1.8 Research Methodology and Strategy

Methodology of study is basically showing research design and strategy. Research methodology will help to develop the action plan to achieve the objectives of the study in a manner acceptable in the academics (Naoum, 1998).

Research strategy can be defined as the way in which the research objectives can be questioned. There are two types of research strategies which are quantitative research and qualitative research. The choice of research strategy is dependent upon the type of and availability of the information required (Naoum, 1998). Meanwhile, research strategy is defined by Creswell (2011) consisting of qualitative, quantitative and mixed methods design or models that give specific direction for procedures. The mixed method approach was adopted for this study and is further explained in Chapter 4.

1.8.1 Literature Review

The first stage of the study involves a comprehensive desktop review of the existing literature on technical and vocational education and training program in Malaysia. The literature study includes the basis of the important skills required by the construction firms which is generally also known as employability skills. It covers literature on skilled manpower issues. In addition, the employability skills framework are developed in various countries and applied in their educational system has been reviewed. This study observes the employability skills identified for construction workers in Scotland and for project managers in Nigeria as well as the general employability skills framework that have been developed for various use by various countries such as Canada, the UK and US. The literature study also helps to justify the respondents

needed in the study and developing the questions needed for the questionnaire survey and the interview. It was done by referring to the journals, books, government reports and internet sources. Details of the literature review are further discussed in Chapter 2 and Chapter 3 of the study.

1.8.2 Questionnaire Survey

Questionnaire survey is used to get information from a wider audience in a limited time and achieve better results in the investigation for the study (McQueen & Knussen, 2002). The respondents of the survey are the practitioners who work in the construction firms at Kuala Lumpur and Selangor. The construction companies selected were all registered under Grade 7 in CIDB directory. A total of 154 questionnaires were distributed and 71 questionnaires (46.1%) were returned. Out of 71, 19 questionnaires were taken out from the analysis process because they are not properly completed and regarded as not suitable to form part of reliable data. Therefore the effective return rate from the survey is 33.8% equivalent to 52 completed questionnaires and they were analysed to achieve the objectives of the study. The details of questionnaire design and analysis are further explained in section 4.4.

1.8.3 Interview

Interview is employed to elicit more information from the respondents so as to have a deeper understanding on the subject under investigation (Naoum, 1998). To understand the current training practices on the skills training programs provided, semi structured interviews were conducted among six different training providers in vocational training institutions under different purview of ministries. The interview sessions were recorded with permission from the respondents. The interview sessions took an average of 45 minutes to one hour with each interviewee. Their answers were based on the experience of the institutions on the construction skills courses. The findings were further discussed in Chapter 5.

1.8.4 Data Analysis

The reliability of the scale and the variables of the survey forms was checked first by using Cronbach's Alpha test. Analysis of the result of the survey was carried out to determine the skill requirement from construction skilled workforces by employers of labour. The data from questionnaire survey were analysed by using several methods. Essentially modes, means, average deviation and other important indices were calculated for each variable using Likert scale rating response data (Nani & Adjei-Kumi, 2008). The methods used included percentage for the demographic information, average mean for skill workers shortages on site and relative importance index in identify the important skills for construction workers. Moreover, t-test statistic was used to gauge on the roles of practitioners and their preference method in training the workers. All the interview responses were analysed according to the code assigned to the variables as suggested by Naoum (1998). The findings and discussion were further explained in Chapter 5.

1.8.5 Validation of Findings

Findings from the analysis were further validated. It was done through interview sessions with three industry experts from the training providers and three experts from construction organisations. The respondents from training providers were selected based on their construction skilled training program offered. Meanwhile, experts from construction firm were selected based on their position and experience. The validation interview is in the semi structured format. The validations of findings were further discussed in Chapter 5.

1.8.6 Strategy Development

Strategies to enhance the training program were proposed to various training institutions. It consists of important skills required selected by the practitioners in building construction firms. Those important skills are identified after the analysis of the data and the skill gap development. The gap is identified between the industry's requirement and the skill training practice in the training

institutions. Recommendations for strategies were made by highlighting the skill requirements needed on-site to be referred by the trainers to infuse the suggested skills in the learning and the skill delivering process. In enhancing the skills and quality of the skill workers in Malaysia construction industry, the role of construction industry and stakeholders are essential. Thus, the strategy also highlighted the key role of industry players in supporting the vocational system of education.

1.9 Significant of Study

Skill shortages give negative impacts to the construction industry, such as working overtime, increasing cost, negative organisation growth and productivity (Clarke & Wall, 1998). Thus, to prevent disruption to project schedules and prevent the existing employee to work over their extent, study on the sustaining skill workers is needed. To increase the growth of organisation, skill shortages in the construction industry need to be overcome. This study specifically contributes to building of human resource and retaining skills for the construction industry. The study provided a way for the TVET and construction industry to work together in sustaining skilled labour in the construction sector of the country. Moreover, for the area of policy, it required administrators of the training institutions to improve their training program towards meeting the demand of construction firm and make the output of a construction firms workable and employable. A focus on training and skill development should be developed to prevent more severe of the future skill shortages.

1.10 Limitation of the Study

The study proposed recommendation strategies to the government, policy makers, employers, training providers, trainees, and the primary education as well. However, there are some limitations in this study including:-

a) The study is limited to building construction firms in Kuala Lumpur and Selangor

b) Only few selected public training institutions were investigated

c) Training institutions are under different purview of ministries thus provide different type of skills courses and different module. Some institutions cover fewer skills courses as compared to others. The respondents' views are limited to the scope of skills offered in their institutions.

d) Some of the respondents from the training institutions were inexperienced about the skills training courses and their importance with the construction industry. Their answers are limited to their institutions' perspective. To overcome this matter, more than one person was interviewed in the same type of institutions.

1.11 Chapter Breakdown

Chapter 1: Introduction
This chapter provide a general introduction to the research. It gives an introduction to the research topic, statement of the problem, research proposition, research questions, research aim and objectives, and a brief description of research methodology, expected findings and the significant of the study**.**

Chapter 2: Construction Nature and Technical and Vocational Education and Training (TVET)
This chapter comprise of literature review on – learning approach and concept, the nature of Malaysian construction industry such as salary structure, scope of works, construction industry's contribution to the Malaysia, and importance of skilled workforces.

Chapter 3: Employability Skills And Response Strategies
This chapter presented and discussed about the employability skills that was developed in the educational system of other countries and how they implemented

and use it. In addition, response strategies by various countries in sustaining skilled workers are also discussed.

Chapter 4: Research Methodology

This chapter provide information on how to achieve the aim of research and objectives of the study. Thus include population of respondent, method of data collection and the method adopted in analysing data.

Chapter 5: Data Analysis and Discussion

Response, result and opinion from the interviews and surveys were presented in this chapter. The result and findings were discussed. Furthermore, the strategy to develop and sustain construction skilled workforces in Malaysia is also presented.

Chapter 6: Conclusion and Recommendation

This chapter provide the summary of findings, conclusion, and limitation to the study, discussion on the strategy and recommendation of the study.

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